

[illegible]

Wood, William I.

<151> February 9, 1999

[illegible]

<150> PCT/US00/32678  
<151> December 1, 2000

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<211> 1283

<212> DNA

<213> Homo sapiens

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125 130 135

Lys Thr Leu Asp Ile Asn Val Lys Ala Pro Ala Leu Met Thr Lys  
140 145 150

Ala Val Val Pro Glu Met Glu Lys Arg Gly Gly Gly Ser Val Val  
155 160 165

Ile Val Ser Ser Ile Ala Ala Phe Ser Pro Ser Pro Gly Phe Ser  
170 175 180

Pro Tyr Asn Val Ser Lys Thr Ala Leu Leu Gly Leu Thr Lys Thr  
185 190 195

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200 205 210

Ala Pro Gly Leu Ile Lys Thr Ser Phe Ser Arg Met Leu Trp Met  
215 220 225

Asp Lys Glu Lys Glu Glu Ser Met Lys Glu Thr Leu Arg Ile Arg  
230 235 240

Arg Leu Gly Glu Pro Glu Asp Cys Ala Gly Ile Val Ser Phe Leu  
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<212> DNA  
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aaaaaaaaatc tttgaaggga c 3121

<210> 7

<211> 830

<212> PRT

<213> Homo sapiens

<400> 7

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Glu Glu Met Val Glu Leu Arg Leu Arg Leu Glu Leu Val Arg Pro

20 25 30

Gly Trp Gly Gly Leu Arg Leu Leu Asn Gly Leu Pro Pro Gly Ser

35 40 45

Phe Val Pro Arg Pro His Thr Ala Pro Leu Gly Gly Ala His Ala

50 55 60

His Val Leu Gly Met Val Pro Pro Ala Cys Leu Pro Gly Asp Glu

65 70 75

Val Gly Ser Glu Gln Arg Gly Glu Gln Val Thr Asn Gly Arg Glu

80 85 90

Ala Gly Ala Glu Leu Leu Thr Glu Val Asn Arg Leu Gly Ser Gly

95	100	105
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110	115	120
Arg Arg Thr Leu His Leu Arg Arg Asn Arg Ile Ser Asn Cys Ser		
125	130	135
Gln Arg Ala Gly Ala Arg Pro Gly Ser Leu Pro Glu Arg Lys Gly		
140	145	150
Pro Glu Leu Cys Leu Glu Glu Leu Asp Ala Ala Ile Pro Gly Ser		
155	160	165
Arg Ala Val Gly Gly Ser Lys Ala Arg Val Gln Ala Arg Gln Val		
170	175	180
Pro Pro Ala Thr Ala Ser Glu Trp Arg Leu Ala Gln Ala Gln Gln		
185	190	195
Lys Ile Arg Glu Leu Ala Ile Asn Ile Arg Met Lys Glu Glu Leu		
200	205	210
Ile Gly Glu Leu Val Arg Thr Gly Lys Ala Ala Gln Ala Leu Asn		
215	220	225
Arg Gln His Ser Gln Arg Ile Arg Glu Leu Glu Gln Glu Ala Glu		
230	235	240
Gln Val Arg Ala Glu Leu Ser Glu Gly Gln Arg Gln Leu Arg Glu		
245	250	255
Leu Glu Gly Lys Glu Leu Gln Asp Ala Gly Glu Arg Ser Arg Leu		
260	265	270
Gln Glu Phe Arg Arg Arg Val Ala Ala Ala Gln Ser Gln Val Gln		
275	280	285
Val Leu Lys Glu Lys Lys Gln Ala Thr Glu Arg Leu Val Ser Leu		
290	295	300
Ser Ala Gln Ser Glu Lys Arg Leu Gln Glu Leu Glu Arg Asn Val		
305	310	315
Gln Leu Met Arg Gln Gln Gln Gly Gln Leu Gln Arg Arg Leu Arg		

320 325 330

Glu Glu Thr Glu Gln Lys Arg Arg Leu Glu Ala Glu Met Ser Lys  
335 340 345

Arg Gln His Arg Val Lys Glu Leu Glu Leu Lys His Glu Gln Gln  
350 355 360

Gln Lys Ile Leu Lys Ile Lys Thr Glu Glu Ile Ala Ala Phe Gln  
365 370 375

Arg Lys Arg Arg Ser Gly Ser Asn Gly Ser Val Val Ser Leu Glu  
380 385 390

Gln Gln Gln Lys Ile Glu Glu Gln Lys Lys Trp Leu Asp Gln Glu  
395 400 405

Met Glu Lys Val Leu Gln Gln Arg Arg Ala Leu Glu Glu Leu Gly  
410 415 420

Glu Glu Leu His Lys Arg Glu Ala Ile Leu Ala Lys Lys Glu Ala  
425 430 435

Leu Met Gln Glu Lys Thr Gly Leu Glu Ser Lys Arg Leu Arg Ser  
440 445 450

Ser Gln Ala Leu Asn Glu Asp Ile Val Arg Val Ser Ser Arg Leu  
455 460 465

Glu His Leu Glu Lys Glu Leu Ser Glu Lys Ser Gly Gln Leu Arg  
470 475 480

Gln Gly Ser Ala Gln Ser Gln Gln Gln Ile Arg Gly Glu Ile Asp  
485 490 495

Ser Leu Arg Gln Glu Lys Asp Ser Leu Leu Lys Gln Arg Leu Glu  
500 505 510

Ile Asp Gly Lys Leu Arg Gln Gly Ser Leu Leu Ser Pro Glu Glu  
515 520 525

Glu Arg Thr Leu Phe Gln Leu Asp Glu Ala Ile Glu Ala Leu Asp  
530 535 540

Ala Ala Ile Glu Tyr Lys Asn Glu Ala Ile Thr Cys Arg Gln Arg

545 550 555

Val Leu Arg Ala Ser Ala Ser Leu Leu Ser Gln Cys Glu Met Asn  
560 565 570

Leu Met Ala Lys Leu Ser Tyr Leu Ser Ser Ser Glu Thr Arg Ala  
575 580 585

Leu Leu Cys Lys Tyr Phe Asp Lys Val Val Thr Leu Arg Glu Glu  
590 595 600

Gln His Gln Gln Gln Ile Ala Phe Ser Glu Leu Glu Met Gln Leu  
605 610 615

Glu Glu Gln Gln Arg Leu Val Tyr Trp Leu Glu Val Ala Leu Glu  
620 625 630

Arg Gln Arg Leu Glu Met Asp Arg Gln Leu Thr Leu Gln Gln Lys  
635 640 645

Glu His Glu Gln Asn Met Gln Leu Leu Leu Gln Gln Ser Arg Asp  
650 655 660

His Leu Gly Glu Gly Leu Ala Asp Ser Arg Arg Gln Tyr Glu Ala  
665 670 675

Arg Ile Gln Ala Leu Glu Lys Glu Leu Gly Arg Tyr Met Trp Ile  
680 685 690

Asn Gln Glu Leu Lys Gln Lys Leu Gly Gly Val Asn Ala Val Gly  
695 700 705

His Ser Arg Gly Gly Glu Lys Arg Ser Leu Cys Ser Glu Gly Arg  
710 715 720

Gln Ala Pro Gly Asn Glu Asp Glu Leu His Leu Ala Pro Glu Leu  
725 730 735

Leu Trp Leu Ser Pro Leu Thr Glu Gly Ala Pro Arg Thr Arg Glu  
740 745 750

Glu Thr Arg Asp Leu Val His Ala Pro Leu Pro Leu Thr Trp Lys  
755 760 765

Arg Ser Ser Leu Cys Gly Glu Glu Gln Gly Ser Pro Glu Glu Leu

770 775 780

Arg Gln Arg Glu Ala Ala Glu Pro Leu Val Gly Arg Val Leu Pro  
785 790 795

Val Gly Glu Ala Gly Leu Pro Trp Asn Phe Gly Pro Leu Ser Lys  
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Pro Arg Arg Glu Leu Arg Arg Ala Ser Pro Gly Met Ile Asp Val  
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Arg Lys Asn Pro Leu  
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<211> 662

<212> DNA

<213> Homo sapiens

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gtgtgggaac aagatctaca acccttcaga gcagtgtgt tatgatgatg 200

ccatcttacc cttaaaggag acccgccgct gtggctccac ctgcaccttc 250

tggccctgct ttgagctctg ctgtcccag tctttggcc cccagcagaa 300

gtttcttggt aagttgaggg ttctgggtat gaagtctcag tgtcacttat 350

ctcccatctc ccggagctgt accaggaaca ggaggcacgt cctgtaccca 400

taaaaacccc aggtccact ggcagacggc agacaagggg agaagagacg 450

aagcagctgg acatcggaga ctacagtga acttcggaga gaagcaactt 500

gacttcagag ggatggctca atgacatagc ttggagagg agcccagctg 550

gggatggcca gacttcaggg gaagaatgcc ttctgcttc atcccccttc 600

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103250 "4E09B60

cattaccat ct 662

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<212> PRT  
<213> Homo sapiens

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Gly Ser Gly Leu Trp Leu Cys Gln Pro Thr Pro Arg Cys Gly Asn  
35 40 45  
  
Lys Ile Tyr Asn Pro Ser Glu Gln Cys Cys Tyr Asp Asp Ala Ile  
50 55 60  
  
Leu Ser Leu Lys Glu Thr Arg Arg Cys Gly Ser Thr Cys Thr Phe  
65 70 75  
  
Trp Pro Cys Phe Glu Leu Cys Cys Pro Glu Ser Phe Gly Pro Gln  
80 85 90  
  
Gln Lys Phe Leu Val Lys Leu Arg Val Leu Gly Met Lys Ser Gln  
95 100 105  
  
Cys His Leu Ser Pro Ile Ser Arg Ser Cys Thr Arg Asn Arg Arg  
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His Val Leu Tyr Pro  
125

<210> 10  
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 35 40 45  
 Glu Lys Arg Glu His Ala Thr Arg Asp Gly Pro Gly Arg Val Asn  
 50 55 60



Glu Leu Gly Arg Pro Ala Arg Asp Glu Gly Gly Ser Gly Arg Asp  
65 70 75

Trp Lys Ser Lys Ser Gly Arg Gly Leu Ala Gly Arg Glu Pro Trp  
80 85 90

Ser Lys Leu Lys Gln Ala Trp Val Ser Gln Gly Gly Gly Ala Lys  
95 100 105

Ala Gly Asp Leu Gln Val Arg Pro Arg Gly Asp Thr Pro Gln Ala  
110 115 120

Glu Ala Leu Ala Ala Ala Ala Gln Asp Ala Ile Gly Pro Glu Leu  
125 130 135

Ala Pro Thr Pro Glu Pro Pro Glu Glu Tyr Val Tyr Pro Asp Tyr  
140 145 150

Arg Gly Lys Gly Cys Val Asp Glu Ser Gly Phe Val Tyr Ala Ile  
155 160 165

Gly Glu Lys Phe Ala Pro Gly Pro Ser Ala Cys Pro Cys Leu Cys  
170 175 180

Thr Glu Glu Gly Pro Leu Cys Ala Gln Pro Glu Cys Pro Arg Leu  
185 190 195

His Pro Arg Cys Ile His Val Asp Thr Ser Gln Cys Cys Pro Gln  
200 205 210

Cys Lys Glu Arg Lys Asn Tyr Cys Glu Phe Arg Gly Lys Thr Tyr  
215 220 225

Gln Thr Leu Glu Glu Phe Val Val Ser Pro Cys Glu Arg Cys Arg  
230 235 240

Cys Glu Ala Asn Gly Glu Val Leu Cys Thr Val Ser Ala Cys Pro  
245 250 255

Gln Thr Glu Cys Val Asp Pro Val Tyr Glu Pro Asp Gln Cys Cys  
260 265 270

Pro Ile Cys Lys Asn Gly Pro Asn Cys Phe Ala Glu Thr Ala Val  
275 280 285

Ile Pro Ala Gly Arg Glu Val Lys Thr Asp Glu Cys Thr Ile Cys  
290 295 300

His Cys Thr Tyr Glu Glu Gly Thr Trp Arg Ile Glu Arg Gln Ala  
305 310 315

Met Cys Thr Arg His Glu Cys Arg Gln Met  
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<211> 24

<212> DNA

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<222> 1-24

<223> Synthetic Oligonucleotide Probe

<400> 12

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<211> 24

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<222> 1-24

<223> Synthetic Oligonucleotide Probe

<400> 13

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<210> 14

<211> 45

<212> DNA

<213> Artificial

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<221> Artificial Sequence

<222> 1-45

<223> Synthetic Oligonucleotide Probe

[illegible]

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<210> 15

<211> 1587

## <212> DNA

## <213> Homo sapiens

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gaacaccagc tgcgacagcg gcttgggggtg ccaggacacg ttgatgetca 200

ttgagagcgg accccaagtg agcctggtgc tctccaaggg ctgcacggag 250

gccaaaggacc aggagccccg cgtcactgag caccggatgg gccccggcct 300

ctccctgac tctacacct tcgtgtgccg ccaggaggac ttctgcaaca 350

acctcgtaa ctccctcccg ctttgggcc caccagcccc agcagaccca 400

ggatccttga ggtgccagct ctgcttgct atggaaggct gtctggaggg 450

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tcctcagget caggggagga ggcatcttet ccaatctgag agtccaggga 550

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gattggacca catcgaatac cgagatgtgc gaggtggggc aggtgtgtca 750

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[illegible]

<211> 437

<213> Hom

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Leu Pro Gly Val Gln Ala Leu Leu Cys Gln Phe Gly Thr Val Gln

His Val Trp Lys Val Ser Asp Leu Pro Arg Gln Trp Thr Pro Lys

Asn Thr Ser Cys Asp Ser Gly Leu Gly Cys Gln Asp Thr Leu Met

50                      55                      60

Leu Ile Glu Ser Gly Pro Gln Val Ser Leu Val Leu Ser Lys Gly  
65 70 75

Cys Thr Glu Ala Lys Asp Gln Glu Pro Arg Val Thr Glu His Arg  
80 85 90

Met Gly Pro Gly Leu Ser Leu Ile Ser Tyr Thr Phe Val Cys Arg  
95 100 105

Gln Glu Asp Phe Cys Asn Asn Leu Val Asn Ser Leu Pro Leu Trp  
110 115 120

Ala Pro Gln Pro Pro Ala Asp Pro Gly Ser Leu Arg Cys Pro Val  
125 130 135

Cys Leu Ser Met Glu Gly Cys Leu Glu Gly Thr Thr Glu Glu Ile  
140 145 150

Cys Pro Lys Gly Thr Thr His Cys Tyr Asp Gly Leu Leu Arg Leu  
155 160 165

Arg Gly Gly Gly Ile Phe Ser Asn Leu Arg Val Gln Gly Cys Met  
170 175 180

Pro Gln Pro Gly Cys Asn Leu Leu Asn Gly Thr Gln Glu Ile Gly  
185 190 195

Pro Val Gly Met Thr Glu Asn Cys Asn Arg Lys Asp Phe Leu Thr  
200 205 210

Cys His Arg Gly Thr Thr Ile Met Thr His Gly Asn Leu Ala Gln  
215 220 225

Glu Pro Thr Asp Trp Thr Thr Ser Asn Thr Glu Met Cys Glu Val  
230 235 240

Gly Gln Val Cys Gln Glu Thr Leu Leu Leu Ile Asp Val Gly Leu  
245 250 255

Thr Ser Thr Leu Val Gly Thr Lys Gly Cys Ser Thr Val Gly Ala  
260 265 270

Gln Asn Ser Gln Lys Thr Thr Ile His Ser Ala Pro Pro Gly Val  
275 280 285

Leu Val Ala Ser Tyr Thr His Phe Cys Ser Ser Asp Leu Cys Asn  
290 295 300

Ser Ala Ser Ser Ser Ser Val Leu Leu Asn Ser Leu Pro Pro Gln  
305 310 315

Ala Ala Pro Val Pro Gly Asp Arg Gln Cys Pro Thr Cys Val Gln  
320 325 330

Pro Leu Gly Thr Cys Ser Ser Gly Ser Pro Arg Met Thr Cys Pro  
335 340 345

Arg Gly Ala Thr His Cys Tyr Asp Gly Tyr Ile His Leu Ser Gly  
350 355 360

Gly Gly Leu Ser Thr Lys Met Ser Ile Gln Gly Cys Val Ala Gln  
365 370 375

Pro Ser Ser Phe Leu Leu Asn His Thr Arg Gln Ile Gly Ile Phe  
380 385 390

Ser Ala Arg Glu Lys Arg Asp Val Gln Pro Pro Ala Ser Gln His  
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Gly Leu Ala Leu Ala Pro Ala Leu Trp Trp Gly Val Val Cys Pro  
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Ser Cys

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Val Ala Asp Met Glu Phe Gly Pro Pro Thr Val Asn Asp Lys Leu  
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Ile Asn Ser Arg Ser Ser Cys Thr Leu Phe Gln Asp Ile Phe Gln  
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Ser Ser Pro Val Ile Leu Gln Phe Gly His Ala Glu Thr Leu Leu  
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Pro Leu Leu Ser Leu Met Gly Tyr Phe Lys Asp Lys Glu Pro Leu  
380 385 390

Thr Ala Tyr Asn Tyr Lys Lys Gln Met His Arg Lys Phe Arg Ser  
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Gly Leu Ile Val Pro Tyr Ala Ser Asn Leu Ile Phe Val Leu Tyr  
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His Cys Glu Asn Ala Lys Thr Pro Lys Glu Gln Phe Arg Val Gln

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Met Leu Leu Asn Glu Lys Val Leu Pro Leu Ala Tyr Ser Gln Glu  
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Thr Val Ser Phe Tyr Glu Asp Leu Lys Asn His Tyr Lys Asp Ile  
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<212> DNA

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<213> Homo sapiens

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35 40 45

Phe Glu Ser Val Glu Leu Ser Cys Ile Ile Thr Asp Ser Gln Thr

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Ser Asp Pro Arg Ile Glu Trp Lys Lys Ile Gln Asp Glu Gln Thr

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Arg Ala Glu Ile Leu Gly Lys Thr Ser Leu Lys Ile Trp Asn Val  
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Thr Arg Arg Asp Ser Ala Leu Tyr Arg Cys Glu Val Val Ala Arg  
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Asn Asp Arg Lys Glu Ile Asp Glu Ile Val Ile Glu Leu Thr Val  
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Gln Val Lys Pro Val Thr Pro Val Cys Arg Val Pro Lys Ala Val  
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Pro Val Gly Lys Met Ala Thr Leu His Cys Gln Glu Ser Glu Gly  
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His Pro Arg Pro His Tyr Ser Trp Tyr Arg Asn Asp Val Pro Leu  
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Pro Thr Asp Ser Arg Ala Asn Pro Arg Phe Arg Asn Ser Ser Phe  
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215 220 225

Gly Ser Ala Arg Cys Glu Glu Gln Glu Met Glu Val Tyr Asp Leu  
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Leu Ala Leu Ile Thr Leu Gly Ile Cys Cys Ala Tyr Arg Arg Gly  
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Tyr Phe Ile Asn Asn Lys Gln Asp Gly Glu Ser Tyr Lys Asn Pro  
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<212> DNA

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Leu Gln Ile Phe Pro Leu Ser Pro Asp Pro Arg Trp Gln Ser Ser  
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Ser Pro Arg Pro Val Ala Leu Ala Leu Gln Gln Ala Leu Gly Gln  
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Gln Glu Phe Arg Gln Gln Asn His Leu Ser Cys Phe Leu His Val  
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Leu Gly Leu Leu Glu Leu Leu Gln Pro His Val Phe Arg Ser Glu  
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His Gln Gly Ala Leu Trp Asp Cys Leu Leu Ser Phe Ile Arg Leu  
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20                      25                      30

Gln Lys Gly Asp Val Val Asp Val Tyr Gln Arg Glu Phe Leu Ala

35                      40                      45

Leu Arg Asp Arg Leu His Ala Ala Glu Gln Glu Ser Leu Lys Arg

50                      55                      60

Ser Lys Glu Leu Asn Leu Val Leu Asp Glu Ile Lys Arg Ala Val

65                      70                      75

Ser Glu Arg Gln Ala Leu Arg Asp Gly Asp Gly Asn Arg Thr Trp

80 85 90

Gly Arg Leu Thr Glu Asp Pro Arg Leu Lys Pro Trp Asn Gly Ser

95                      100                      105

His Arg His Val Leu His Leu Pro Thr Val Phe His His Leu Pro

110                      115                      120

His Leu Leu Ala Lys Glu Ser Ser Leu Gln Pro Ala Val Arg Val

125                      130                      135

Gly Gln Gly Arg Thr Gly Val Ser Val Val Met Gly Ile Pro Ser

140                      145                      150

Val Arg Arg Glu Val His Ser Tyr Leu Thr Asp Thr Leu His Ser

155                      160                      165

Leu Ile Ser Glu Leu Ser Pro Gln Glu Lys Glu Asp Ser Val Ile

170                      175                      180

Val Val Leu Ile Ala Glu Thr Asp Ser Gln Tyr Thr Ser Ala Val

185 190 195

Thr Glu Asn Ile Lys Ala Leu Phe Pro Thr Glu Ile His Ser Gly  
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Leu Leu Glu Val Ile Ser Pro Ser Pro His Phe Tyr Pro Asp Phe  
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Ser Arg Leu Arg Glu Ser Phe Gly Asp Pro Lys Glu Arg Val Arg  
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Trp Arg Thr Lys Gln Asn Leu Asp Tyr Cys Phe Leu Met Met Tyr  
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Ala Gln Ser Lys Gly Ile Tyr Tyr Val Gln Leu Glu Asp Asp Ile  
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Val Ala Lys Pro Asn Tyr Leu Ser Thr Met Lys Asn Phe Ala Leu  
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Gln Gln Pro Ser Glu Asp Trp Met Ile Leu Glu Phe Ser Gln Leu  
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Gly Phe Ile Gly Lys Met Phe Lys Ser Leu Asp Leu Ser Leu Ile  
305 310 315

Val Glu Phe Ile Leu Met Phe Tyr Arg Asp Lys Pro Ile Asp Trp  
320 325 330

Leu Leu Asp His Ile Leu Trp Val Lys Val Cys Asn Pro Glu Lys  
335 340 345

Asp Ala Lys His Cys Asp Arg Gln Lys Ala Asn Leu Arg Ile Arg  
350 355 360

Phe Lys Pro Ser Leu Phe Gln His Val Gly Thr His Ser Ser Leu  
365 370 375

Ala Gly Lys Ile Gln Lys Leu Lys Asp Lys Asp Phe Gly Lys Gln  
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